

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re Application of

FENDERSON et al

Serial No. 08/911,926

Filed: August 15, 1997 as division from Appln. No. 08/467,364 filed June 6, 1995

For: HERBICIDAL COMPOSITIONS COMPISING DIMETHENAMID AND DIKETONE OR
TRIKETONE HERBICIDES

DECLARATION

I, Bernd Sievernich, a citizen of the Federal Republic of Germany and residing at Bertolt-Brecht-Strasse 18a, 67454 Hassloch, Germany, declare as follows:

I am a fully trained agronomist, having studied agronomy at the University of Paderborn, Germany, from 1981 to 1984;

Since 1986, when I joined BASF Aktiengesellschaft of 67056 Ludwigshafen, Germany, I have been engaged in the the research and development of herbicides, and I am therefore fully conversant with the technical field to which the invention disclosed and claimed in application Serial No. 08/911,926 belongs.;

I have studied the Office Action that has issued in this case and read the references cited therein.

In order to prove the superior herbicidal action of the inventive combinations of Dimethenamid and a trione herbicide the following tests were carried out under my supervision with the standardized procedures described below.

I. Test conditions and evaluation:

The herbicidal action of the compositions according to the invention was demonstrated by greenhouse experiments:

The culture containers used were plastic pots containing loamy sand with approximately 3.0% of humus as substrate. The seeds of the test plants were sown separately for each species.

For the pre-emergence treatment, the active compounds, emulsified in water, were applied directly after sowing by means of finely distributing nozzles. The containers were irrigated gently to promote germination and growth and subsequently covered with transparent plastic hoods until the plants had rooted. This cover caused uniform germination of the test plants unless this was adversely affected by the active compounds.

Depending on the species, the plants were kept at 10 - 25°C and 20 - 35°C, respectively. The test period extended over 2 to 4 weeks. During this time, the plants were tended and their response to the individual treatments was evaluated.

Evaluation was carried out using a scale from 0 to 100. 100 means no emergence of the plants, or complete destruction of at least the above-ground parts, and 0 means no damage or normal course of growth.

The respective stated active compounds, were used as emulsion concentrates in the given strengths and, with addition of the amount of solvent system, introduced into the spray liquor used for applying the active compound. In the examples, the solvent used was water.

The test period extended over 20 days, respectively. During this time, the plants were tended, and their reaction to the treatment with active compound was monitored.

What was evaluated was the damage by the chemical compositions using a scale of from 0 to 100%, in comparison to the untreated control plants. 0 means no damage, and 100 means complete destruction of the plants.

In the examples below, using the method of S. R. Colby (1967) "Calculating synergistic and antagonistic responses of herbicide combinations", Weeds 15, p. 22ff., the value E, which is expected if the activity of the individual active compounds is only additive, was calculated.

$$E = X + Y - (X * Y / 100)$$

where

X = percent activity using active compound A at an application rate a;

Y = percent activity using active compound B at an application rate b;

E = expected activity (in %) by A + B at application rates a + b.

If the value found experimentally is higher than the value E calculated according to Colby, a synergistic effect is present.

The plants used in the greenhouse experiments were of the following species:

Bayer code	Scientific name	English name
AMARE	Amaranthus retroflexus	Redroot pigweed
AMBEL	Ambrosia artemisiifolia	Common ragweed
BIDPI	Bidens pilosa	Common blackjack
BRAPL	Brachiaria plantaginea	alexandergrass
CASTO	Cassia tora	Foetid cassia
CHEAL	Chenopodium album	Common lambsquarters
DIGSA	Digitaria sanguinalis	large crabgrass
ECHCG	Echinochloa crus-galli	barnyardgrass
EPHHL	Euphorbia heterophylla	Painted spurge
HELAN	Helianthus annuus	Common sunflower
HIBTR	Hibiscus trionum	Bladder ketmia
PHBPU	Pharbitis purpurea	Tall morning glory
POLPE	Polygonum persicaria	Ladysthumb
SETFA	Setaria faberi	giant foxtail
SIDSP	Sida spinosa	Teaweed
XANST	Xanthium strumarium	Common cocklebur
ZEAMX	Zea mays	Maize

The results of these tests are given in the tables and demonstrate the synergistic effect of mixtures comprising Dimethenamid and Mesotrione.

In this context, a.i. means active ingredient, based on 100 % active ingredient. The "expected" values are calculated according to Colby.

II. Experiments:

The following tables 1 and 2 show the herbicidal action of the tested compounds in the greenhouse (pre-emergence applications):

Table 1: Herbicidal action of Dimethenamid-P and Mesotrione;
Evaluation 20 days after treatment

weed	application in pre-emergence							
	solo application				combination		DMTA-p + mesotrione	
	DMTA-p		mesotrione		DMTA-p + mesotrione		expected	Synergism
	use rate g ai/ha	% activity	use rate g ai/ha	% activity	use rate g ai/ha	% activity	% activity	Y/N
ZEAMX	250	0	16	0	250+16	0	0,0	no influence on selectivity
ZEAMX	250	0	31	0	250+31	0	0,0	
ZEAMX	250	0	63	0	250+63	0	0,0	
ZEAMX	250	0	125	0	250+125	0	0,0	
HELAN	250	0	16	70	250+16	75	70,0	Y
HELAN	250	0	31	75	250+31	85	75,0	Y
HELAN	250	0	125	95	250+125	98	95,0	Y
BRAPL	250	95	16	10	250+16	100	95,5	Y
BRAPL	250	95	31	10	250+31	100	95,5	Y
BRAPL	250	95	63	20	250+63	100	96,0	Y
BRAPL	250	95	125	90	250+125	100	99,5	Y
AMBEL	250	70	16	20	250+16	90	76,0	Y
AMBEL	250	70	63	80	250+63	100	94,0	Y
AMBEL	250	70	125	85	250+125	100	95,5	Y
BIDPI	250	75	63	85	250+63	98	96,3	Y
BIDPI	250	75	125	95	250+125	100	98,8	Y
CASTO	250	20	16	20	250+16	50	36,0	Y
CASTO	250	20	31	20	250+31	70	36,0	Y
CHEAL	250	80	16	95	250+16	100	99,0	Y
CHEAL	250	80	31	95	250+31	100	99,0	Y
EPHHL	250	60	125	85	250+125	98	94,0	Y
HIBTR	250	0	63	70	250+63	80	70,0	Y
HIBTR	250	0	125	90	250+125	100	90,0	Y
PHBPU	250	20	16	20	250+16	70	36,0	Y
PHBPU	250	20	31	70	250+31	80	76,0	Y
PHBPU	250	20	63	80	250+63	98	84,0	Y
PHBPU	250	20	125	90	250+125	100	92,0	Y
POLPE	250	70	16	80	250+16	95	94,0	Y
POLPE	250	70	31	80	250+31	95	94,0	Y
SIDSP	250	0	16	70	250+16	95	70,0	Y
SIDSP	250	0	31	85	250+31	98	85,0	Y
SIDSP	250	0	63	90	250+63	98	90,0	Y
XANST	250	0	16	65	250+16	70	65,0	Y

evaluation 20 DAT

DMTA-p = 720 g/l, EC
mesotrione = 10 g/l, EC

Table 2: Herbicidal action of Dimethenamid-P and Mesotrione;
Evaluation 20 days after treatment

weed	application in pre-emergence							
	solo application				combination		DMTA-p + mesotrione	
	DMTA-p		mesotrione		DMTA-p + mesotrione		DMTA-p + mesotrione expected	Synergism
	use rate g ai/ha	% activity	use rate g ai/ha	% activity	use rate g ai/ha	% activity	% activity	Y/N
ZEAMX	8	0	8	0	8+8	0	0,0	no influence on selectivity
ZEAMX	16	0	16	0	16+16	0	0,0	
ZEAMX	31	0	31	0	31+31	0	0,0	
ZEAMX	63	0	63	0	63+63	0	0,0	
DIGSA	31	70	31	90	31+31	98	97,0	Y
ECHCG	31	80	31	10	31+31	85	82,0	Y
ECHCG	63	95	63	10	63+63	98	95,5	Y
SETFA	31	70	31	0	31+31	85	70,0	Y
AMARE	31	40	31	75	31+31	90	85,0	Y
AMARE	63	90	63	90	63+63	100	99,0	Y
CHEAL	16	0	16	80	16+16	85	80,0	Y
CHEAL	31	0	31	90	31+31	95	90,0	Y
CHEAL	63	0	63	90	63+63	95	90,0	Y
POLPE	31	25	31	80	31+31	90	85,0	Y
POLPE	63	50	63	85	63+63	100	92,5	Y

evaluation 20 DAT

DMTA-p = 900 g/l, EC
mesotrione = 10 g/l, EC

The tables clearly demonstrate that the combinations of Dimethenamid and mesotrione according to application Serial No. 08/911,926 are most suitable for controlling unwanted plants of a great variety, without any appreciable damage to the crop itself.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information or belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signed at 67056 Ludwigshafen, Germany, 29 of November 2008.



Signature of Declarant